Features

- Transient protection for high-speed data lines
  - IEC 61000-4-2 (ESD) ±30kV(Air)
    ±30kV(Contact)
  - IEC 61000-4-4 (EFT) 40A (5/50ns)
  - IEC 61000-4-5 (Surge) 20A(8/20us)
- Low leakage current: 10nA @V_{RWM} (Typical)
- Low operating and clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge

Description

S3301TE is an ultra-low capacitance ESD and Surge Protector designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. S3301TE is designed to protect parasitic-sensitive system against over-voltage and over current transient events. It complies with IEC 61000-4-2 (ESD),Level 4 (±15kV air,±8kV contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), IEC 61000-4-5 (Surge)(20A,8/20us),very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

S3301TE is in an SOD-323 package The combined features of ultra-low capacitance and high ESD robustness make S3301TE ideal for applications where arrays are not practical. The low clamping voltage of the S3301TE guarantees a minimum stress on the protected IC.

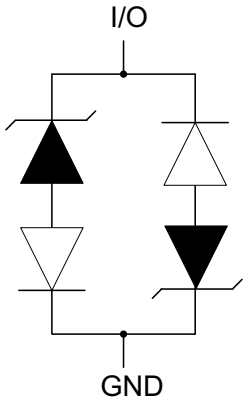
Applications

- Desktops, Servers and Notebooks
- Cellular Phones
- Portable Instruments
- Analog Inputs

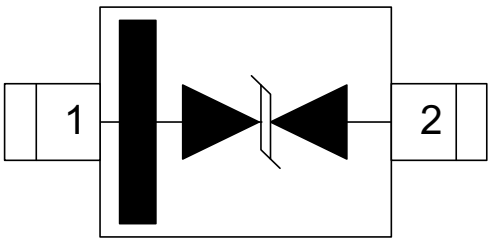
Mechanical Characteristics

- SOD-323 package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel

Circuit Diagram



Pin Configuration



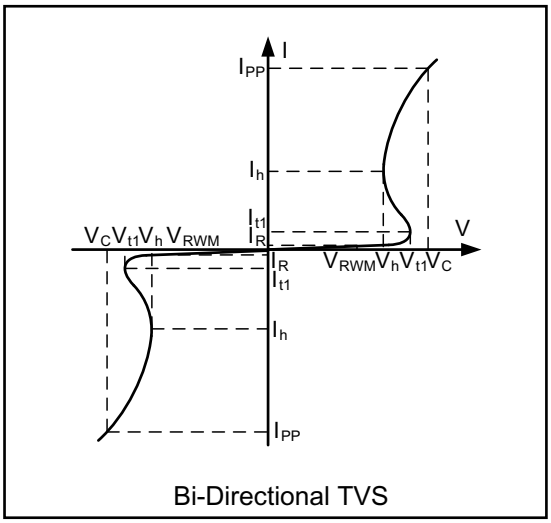
SOD-323
(Top View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (8/20us)	20	A
P_{PK}	Peak Pulse Power (8/20us)	300	Watts
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
T_{OPT}	Operating Temperature	-45 to+85	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Electrical Characteristics (T = 25°C)

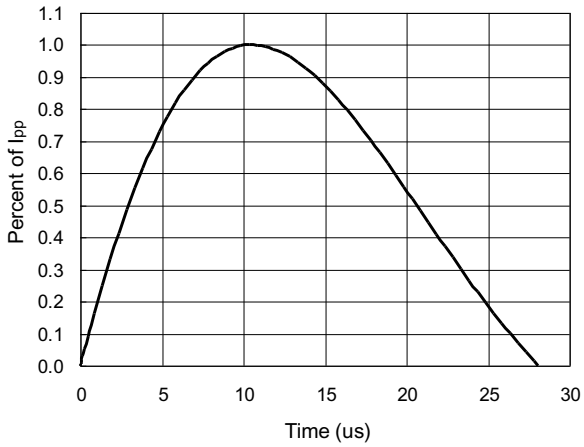
Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
V_{CR}	Reverse Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance



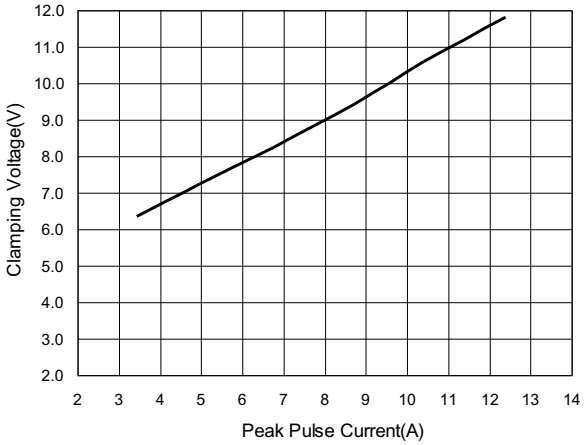
Bi-Directional TVS

Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				3.3	V
I_R	V_{RWM} = 3.3V, T = 25°C		0.01	0.5	μA
V_{t1}	I_{t1} = 1μA	3.5	3.7	4.5	V
V_h	I_h = 1mA	2.8		4.0	V
V_C	I_{PP} = 2A, t_p = 8/20μs			5.0	V
V_C	I_{PP} = 10A, t_p = 8/20μs			9.0	V
V_{CR}	I_{PP} = 1A, t_p = 8/20μs			2	V
C_{ESD}	V_R = 0V, f = 1MHz		0.6		pF
C_{ESD}	V_R = 3.3V, f = 1MHz		0.6		pF

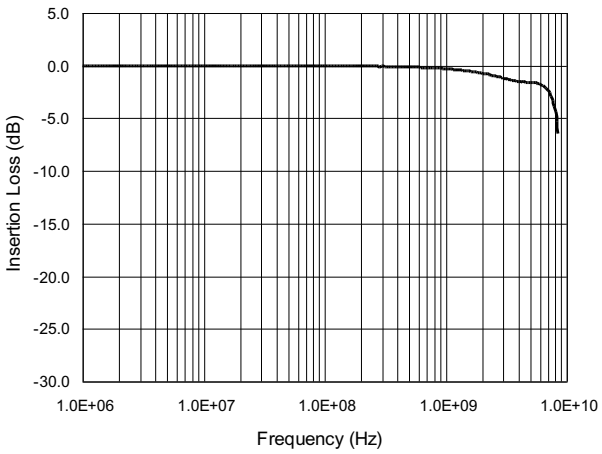
8/20μs Pulse Waveform



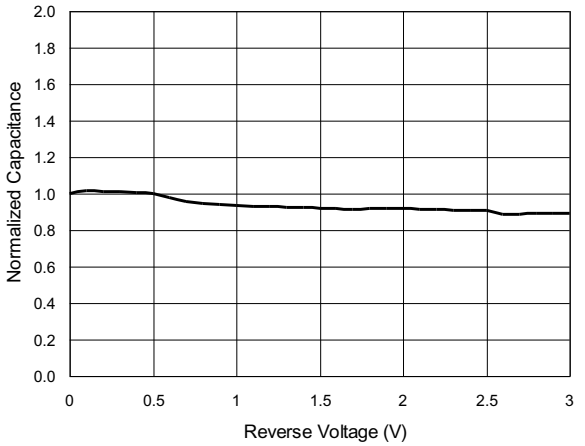
Clamping Voltage V_C vs. Current I_{PP}



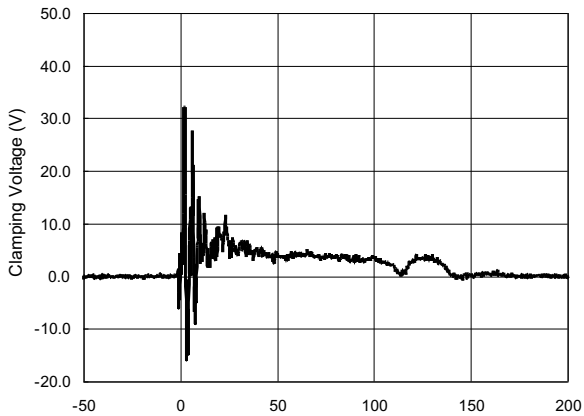
Insertion Loss S21



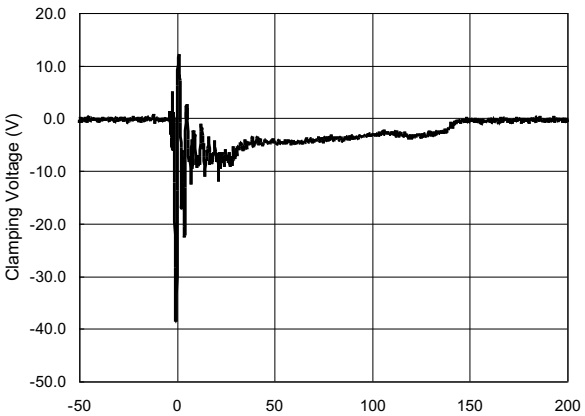
Normalized Capacitance vs. Voltage



ESD Clamping of I/O to GND (+8kV Contact per IEC 61000 -4-2)

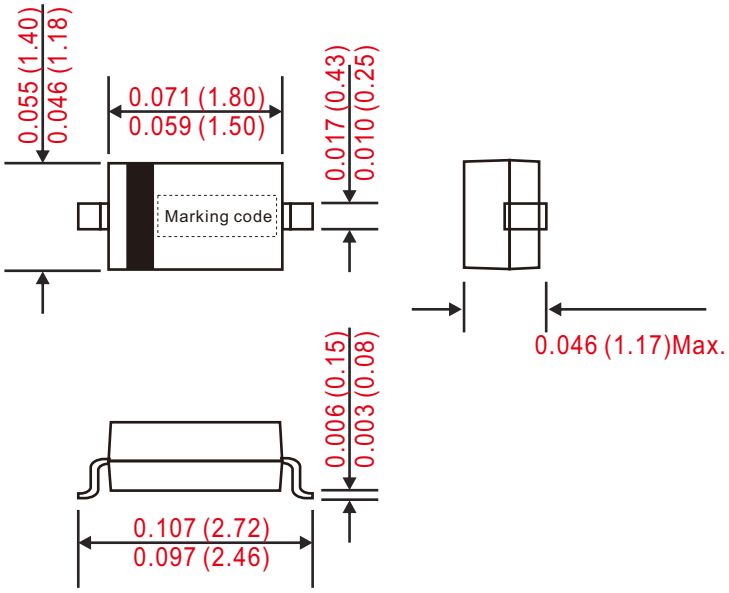


ESD Clamping of I/O to GND (-8kV Contact per IEC 61000 -4-2)



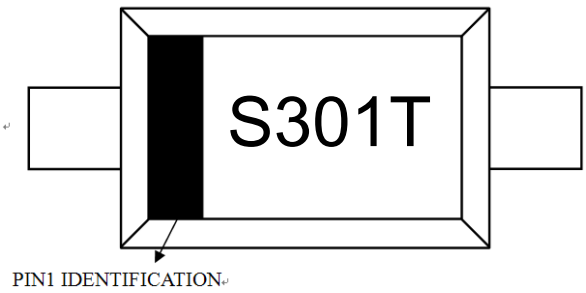
■ Outline

SOD-323



Dimensions in inches and (millimeters)

Marking Codes



Note:

(1) "S301T" is the part number, fixed.

Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
S3301TE	3.3V	3,000	7 Inch

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Revision : C

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